

REMARKS

This case has been carefully reviewed and analyzed in view of the Official Action dated 10 May 2002. Responsive to the rejections made in the Official Action, Claims 1-3 have been canceled by this Amendment and the subject matter thereof rewritten as new Claims 4 and 5, which was the easiest method to clarify the combination of elements which form the invention of the subject Patent Application.

In the Official Action, the Examiner rejected Claims 1-3 under 35 U.S.C. § 103, as being unpatentable over Ho, U.S. Patent #6,121,710, in view of Horng, U.S. Patent #4,987,331. The Examiner stated that the Ho reference disclosed a silicon-steel structure motor comprising an integrally formed by a magnetic material silicon-steel plate having a main body, and a plurality of tooth portions formed on top and bottom sides of the main body. The Examiner further stated that the tooth portions were bent vertically with respect to the main body and the main body was rolled to form a cylindrical shape, and the tooth portions formed on the top and bottom sides with equal pitch. The Examiner then stated that the Ho reference disclosed all the limitations of the Claims except for the silicon-steel structure of a motor with a plurality of additional silicon-steel plates stacked on top and bottom surfaces. The Examiner then refers to the Horng reference as disclosing a motor with silicon-steel structure having a plurality of additional silicon-steel plates. The Examiner then concludes it would have been obvious to combine the additional silicon-steel plates of Horng with the structure of Ho.

MR2349-719

Before discussing the references relied upon by the Examiner, it is believed beneficial to first briefly review the structure of the invention of the subject Patent Application and the advantages provided thereby. The invention of the subject Patent Application is directed to a stator structure for a motor. The stator structure includes a single silicon-steel plate having a plurality of tooth portions formed on two opposing sides of a longitudinally extended main body portion in staggered relationship. The main body portion of the silicon-steel plate is formed into a cylinder with the plurality of tooth portions extending radially therefrom. The stator structure further includes an insulating layer covering at least one surface portion of the silicon-steel plate, and a winding is formed by a predetermined number of turns of an electrically conductive wire, the winding being wound on the insulating layer. By that arrangement, the stator structure is efficiently manufactured and assembled. As the silicon-steel core is formed integrally, from a single silicon-steel plate, a "closed" magnetic circuit is thereby formed. The integral structure of the magnetic core maximizes performance of the motor with which the stator is utilized.

The invention of the subject Patent Application may also be described in a product by process format, wherein the stator structure for a motor is reduced according to a process. That process includes forming a main body portion having a rectangular contour with a plurality of tooth portions formed on two opposing longitudinally extended sides thereof from a single silicon-steel plate, where the plurality of tooth portions are arranged in a staggered relationship. The process further includes the step of bending the plurality of tooth

MR2349-719

portions to extend orthogonally from one surface of the main body, and then rolling the main body into a cylindrical shape with the plurality of tooth portions extending radially therefrom. The process includes covering at least one surface of the main body and at least one surface of at least a portion of the plurality of tooth portions with an insulating layer, and then winding a predetermined number of turns of an electrically conductive wire around the main body. The product produced by this process has the advantages described above.

In contradistinction, the Ho reference discloses a stator structure wherein a plurality of silicon-steel plates are punched so that a portion thereof has the same shape as recessed portions of insulating packing pieces 6, 4, and outer peripheries thereof being provided with shaft pieces 71, 31 having a small curvature. The silicon-steel plates 7, 3 are installed on corresponding packing pieces 6, 4 with the shaft pieces 71, 31 extending through a central through hole 64, 44 for installation into respective insert slots 541, 551 of a plastic sleeve 5. Thus, rather than being integrally formed, as in the invention of the subject Patent Application, the core formed in the reference system is formed by the assembly of a plurality of silicon-steel plates, which are held in proximity to one another by the plastic sleeve 5. As the plurality of plates 7 and 3 are arranged in staggered relationship, the arcuate shaft pieces 71, 31 are disposed in adjacent alternating relationship, wherein the total number of plates 7, 3 together form a cylindrical-shaped structure. However, as the shaft portions 71, 31 are arranged side by side, between the separate and distinct slots of the plastic sleeve, there is some gap between the edges of the plates, across which the magnetic fields must pass to

MR2349-719

complete the magnetic circuit of the stator. Thus, the reference stator has a higher reluctance than that of the invention of the subject Patent Application.

Thus, the Ho reference fails to disclose a core for a stator formed from a single silicon-steel plate. The reference fails to disclose the main body of the core having a rectangular contour with a plurality of tooth portions being formed on two opposing longitudinally extended sides thereof, wherein the plurality of tooth portions are bent to extend orthogonally from one surface of the main body, and the main body is rolled into a cylindrical shape with the plurality of tooth portions extending radially therefrom.

The Horng reference does not overcome the deficiencies of Ho. The Horng reference discloses a stator structure of a DC motor formed by a plurality of silicon-steel plates 2, 3 mounted on opposing sides of a metal cylinder 15. Thus, hereagain, the magnetic core of the stator must be assembled from separate pieces which require additional manufacturing and assembly steps, as well as provide gaps between the magnetic circuit components which add reluctance thereto and reduce the performance of the motor with which the stator is utilized.

Therefore, the combination of Ho and Horng cannot make obvious the invention of the subject Patent Application, as now claimed.

MR2349-719

It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,
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